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ABSTRACT

This report presents a review of follow-up studies of former occupational-technical students at community colleges throughout the nation. The purpose was to evaluate the effectiveness of follow-up studies in measuring attainment of educational goals stated in community college catalogs and literature. This evaluation was made by studying the research emphases, motivations, and procedures for the studies. In winter 1973, a 12-item questionnaire was sent to all 720 public comprehensive two-year colleges which began offering occupational-technical programs prior to September 1970; 520 (72.5 percent) responded. This questionnaire requested information on research motivations and frequency, and asked for copies of recent studies. The content of the 85 most sophisticated follow-up studies submitted was analyzed using a three-part 66-item coding instrument. A 44-item goals inventory for occupational-technical education was prepared in order to measure the educational goal emphases of the studies. Findings are reported and recommendations for improving follow-up studies are made. The appendix includes a list of the 42 community college catalogs and a bibliography of the literature consulted in determining educational goals, a list of the 85 colleges submitting sophisticated follow-up studies, the questionnaire and accompanying letters, and the content coding form and procedures for its use. (Author/DC)

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FOLLOW-UP STUDIES OF FORMER OCCUPATIONAL-TECHNICAL STUDENTS AT COMMUNITY COLLEGES

Research Report No. 1

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A panel of consultants (Appendix G) reviewed the progress of this research at several stages. The ideas and encouragement of the consultants were vital to the success of the project.

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TABLE OF CONTENTS

	Page
LIST OF TABLES	iv
INTRODUCTION	1
Purpose of the Investigation	1
Importance of Follow-Up Research	1
Need for More Information on Follow-Up Studies	2
Review of Related Literature	2
RESEARCH METHOD	7
Community College Population	7
Data-Gathering Instruments	7
Educational Goals Inventory	9
Procedure	9
EDUCATIONAL GOALS INVENTORY	13
FINDINGS	21
Research Questions	21
Authorship of Reports	33
SUMMARY	36
Procedure	36
Findings	36
RECOMMENDATIONS	38
Recommendations for Follow-Up Study Improvement	38
Suggestions for Additional Research	40
BIBLIOGRAPHY	41
APPENDICES	49
A. Two-Year College Catalogues From Which Educational Goals Were Derived	51
B. Covering Letter and Questionnaire Sent to Community Colleges	52
C. Reminder Letter to Community Colleges	56
D. Content Coding Form for Follow-Up Study Reports	57
E. Content Coding Procedures for Follow-Up Study Reports	59
F. Community Colleges Whose Follow-Up Reports Were Content Coded	62
G. Project Staff and Consultants	64

LIST OF TABLES

Table		Page
1	Questionnaire and Report Response by State	11
2	Selection of Reports for Coding	12
3	Status of Follow-Up Studies of Former Occupational-Technical Students	22
4	Research Motivations Rated Very Important or Of Some Importance	22
5	Design Sources Rated Very Important or Of Some Importance	23
6	College Reports of Satisfaction with Availability of Follow-Up Studies Conducted at Other Community Colleges	23
7	Community Colleges Which Regularly Conduct Exit Interviews	24
8	Community Colleges Conducting Research Studies of Non-Student Populations	24
9	Colleges Reporting Students Included in Statewide or Regional Follow-Up Studies Since January, 1967	25
10	Selection of Subjects Based on Program Completion	25
11	Choice of Total Population Versus Sub-Population or Representative Sample	26
12	Method of Selecting Subjects from a Total Population	26
13	Reports of Multiple Mail Contacts and Telephone Contacts	27
14	Student Response Rates with Varying Amounts and Kinds of Contacts	27
15	Length of Reports	28
16	Number of Items in Questionnaires	28
17	Balance Between Narrative and Raw Data	29
18	Follow-Up Studies Pertaining To Transfer As Well As To Occupational-Technical Students	29

Table		Page
19	Follow-Up Studies Reporting A Test of Non-Response Bias	30
20	Follow-Up Studies Reporting Tests of Significance	30
21	Follow-Up Reports Containing Employer Evaluations of Former Students	30
22	Reports Containing Distinctions Between New and Experienced Workers	31
23	Longitudinality of Follow-Up Studies	31
24	Questionnaires Obtaining Registrars' Data or Other Enrollment Period Data	32
25	Questionnaires Obtaining Student Transfer Information and Student Advice or Evaluations	32
26	Follow-Up Studies Giving Attention to Each of 44 Educational Goals	34
27	Title or Office of Follow-Up Report Authors	35

INTRODUCTION

Purpose of the Investigation

This report presents a review of follow-up studies of former occupational-technical students at community colleges throughout the nation. The purpose was to evaluate the effectiveness of follow-up studies in measuring attainment of educational goals, as stated in community college catalogues and literature. This evaluation was made by studying research emphases, motivations, procedures, design influences, and report formats of community college research projects. Data were obtained from questionnaires returned by more than 500 community colleges and from a content analysis of 85 accompanying follow-up study reports. Research emphases in follow-up reports were compared with a 44-item goals inventory prepared by the project staff and consultants.

The findings of this study are presented in terms of 18 research questions about follow-up studies. Twelve recommendations for improving follow-up studies of former occupational-technical students were derived from the findings.

This research was supported by federal funds made available through the Virginia Department of Education, Vocational Education Division. A proposed review of follow-up study findings and a comparison of such findings with those of Virginia community college research are not included but will be the subject of future projects.

Importance of Follow-Up Research

Evaluation of occupational-technical education at the community college can take many forms. One method is to administer ability tests before and after courses of instruction. Another is to examine conditions of resources, such as quality of instruction and facilities. A third method, and the subject of the present report, is to examine post-college experiences and perceptions of former students in order to determine whether educational goals have been achieved. This procedure involves evaluation through follow-up research.

Follow-up studies are important in establishing public confidence and support among citizens, legislators and executives in government. Hamlin (1967) believes that "Citizen evaluation of public occupational education is probably the most important factor affecting it. On the basis of their evaluations, citizens assign responsibilities for occupational education and provide or withhold funds, personnel, and facilities (p. iii)." Public support is a major focus of accountability. Tyler (1969) writes that "Only as we can describe more accurately the results we are obtaining from the curriculum are we in a position to get the most intelligent support for the educational program . . . (p. 125)." Rouche and Boggs (1968) refer more directly to financial implications of accountability when they state that "As a consequence

of the increased need for funds, efficiency-minded legislators, parents, boards of trustees, and the public are asking whether institutions are getting the maximum value from each dollar expended (p. 1)." O'Connor (1965) proclaims that "The existency of junior colleges depends on their ability to convince the people in their communities that they are dynamic, educational institutions capable of serving students well (p. 52)."

Need for More Information on Follow-Up Studies

Follow-up study reports on former occupational-technical students are only rarely published or widely circulated, and reviews of such studies have been inadequate. The isolation of follow-up research reduces its usefulness in at least two ways. First, progress in research design is impaired by a lack of dissemination of research ideas among community colleges. Second, the absence of shared research emphases and procedures reduces college-to-college comparability of follow-up research data. The present report provides a review of follow-up studies of former occupational-technical students which purports to communicate useful research ideas, facilitate the comparability of research data, and promote the relevance of future follow-up research to stated goals.

Writing on the subject of community college follow-up research, O'Connor (1965) observed that follow-up studies are particularly valuable in measuring the benefits of career education. He went so far as to say that "No better method exists for determining how well the technical-occupational objectives of the college are being carried out (p. 22)."

Despite the value of follow-up research there seems to be no consensus as to how such studies should be conducted. Garland and Carmody (1970) found little agreement among institutions about adequate indicators of success in occupational-technical programs. The only widely accepted indicator was employment rates of former students. Huff (1971) also argues for greater standardization of measurement in evaluation research, pointing out that inter-institutional exchange of data and study of a longitudinal nature require standardization. Describing their investigation of institutional research in two-year colleges, Rouche and Boggs (1968) conclude that "Many two-year colleges are engaging in some research activity, but that dissemination of findings is typically limited to the institution involved (p. 52)."

Review of Related Literature

Reviews of Follow-Up Research

Gartland and Carmody (1970, pp. 15-23) surveyed 689 two-year colleges which offered both transfer and occupational-technical programs. Their purpose was to learn more about institutional guidance and research programs. They also sent questionnaires to 351 vocational-technical schools and requested copies of follow-up studies from all institutions.

Of 518 two-year colleges responding, 18 percent reported that they had never conducted follow-up studies and 28 percent stated that they rarely conducted follow-up studies. However, more than one-half (55%) reported that follow-up studies of former occupational-technical students were conducted on a regular basis. Institutional spokesmen for 99 percent of the two-year colleges reported that they believed follow-up studies to be useful.

Based on a review of 45 follow-up study reports which were received from both vocational-technical schools and two-year colleges, Gartland and Carmody (1970, pp. 16-23) observed that very few of the studies included students who had not completed programs. Only one study included employer evaluations of student preparation. The authors found the range of student response rates to be between 30 and 85 percent, with a mean response rate of 60 percent.

Regarding the common failure to obtain employer evaluations, the authors stated that "The apparent lack of interest in this area is surprising since it is likely that detailed evaluations of program graduates by employers would provide institutions with valuable information concerning the effectiveness and relevance of their occupational curricula (p. 23)."

Deem's (1969, pp. 18-38) dissertation was intended to compare existing practices in follow-up research at public two-year colleges with the practices desired by administrators at the colleges. One of his secondary goals was to compare follow-up research conducted in Illinois with that conducted elsewhere.

The method used by Deem was to send questionnaires to the institutions and their instructors and administrators. He did not review follow-up studies firsthand. His sample of institutions was intentionally non-representative of American public two-year colleges and the number of respondents was rather low.

In his introduction, Little (1970) stated his intention to review follow-up research on the secondary, post-secondary and adult levels. However, nearly all of the research reports and findings which were presented pertained only to secondary education. Little's review, therefore, does not meet the need for a state of the art review of community college follow-up research regarding former occupational-technical students.

Follow-Up Guides

Comprehensive guides on planning, implementing and reporting follow-up studies of occupational-technical students would facilitate uniformity of research design at community colleges. Two guides have been found which have some usefulness.

Huinker (1970) attempted to design a model follow-up plan for both transfer and occupational-technical students who were formerly enrolled in community colleges. His dissertation (p. 35) contains several helpful guidelines on follow-up research which are listed below:

Provide for democratic involvement by members of the college community.

Include all categories of the student population.

Insure utilization of the results of the study.

Appoint a single, responsible coordinator.

In a six-page master plan, Huinker gave advice on what should be done in planning, conducting and reporting follow-up studies. However, very little is said about how the recommended procedures are to be carried out.

O'Connor (1965, pp. 9-10) offered informal advice about follow-up research. Some of his most useful ideas concern the role of follow-up studies for different members of the college community. O'Connor points out that follow-up studies provide counselors with a factual basis for advising students on career choice and course selection. Also, students can obtain information on the level of success they may achieve after college, what salaries they can earn, what their chances for transfer will be, and why they must take certain required courses. Finally, instructors can learn about the adequacy of their teaching and course content.

O'Connor (p. 43) provided a list of relevant data for follow-up research, which included the following:

Dates of enrollment and major field of study

Present job and relatedness to training

Job History since leaving college

Student evaluations of instruction and student services

Additional training after attendance

Advice to other students

Each of these items is useful, but more details are needed on ways to collect and interpret data and relate them to educational goals.

Nationwide Follow-Up Studies

The existence of comprehensive nationwide follow-up studies could solve some of the problems which result from isolation of follow-up research. A nationwide study would receive widespread attention and

establish baseline data with which colleges could compare their own findings. Unfortunately, a model nationwide follow-up study of occupational-technical students at community colleges does not exist.

Somers' (1971) reported on a federally funded national follow-up study of former vocational-technical students conducted by the Center for Studies in Vocational and Technical Education at the University of Wisconsin and by the Bureau for Social Science Research, Inc. Somers' questionnaire is lengthy (63 questions) but it is a good resource document. While the author admitted to several disappointments in the study, many of his procedures could be used to advantage by community colleges. For example, repeated student contacts and tests of non-response bias were used in an effort to maximize the response rate and determine the degree to which respondents were representative of the study sample. The elimination of non-graduates from the sample is unfortunate and reduces the usefulness of Somers' work as a research model.

Educational Goals Inventories

The problem of defining the goals of post-secondary education has been confronted many times in research reports, conferences, books, and journal articles. Unfortunately, a careful review of the literature has revealed no single comprehensive goals inventory appropriate for occupational-technical education. However, several of the most valuable inventories deserve mention.

Huff's (1971) inventory of the benefits of higher education was a result of the work of the Planning and Management Systems unit of the Western Inter-State Commission on Higher Education, to develop means to measure outputs of educational programs. The outcomes and activities in the Huff inventory are arranged in four categories: Research Outcomes, Public Service Outcomes, Instructional Outcomes, and Instructional Environment Variables. The outcomes under the Instructional Outcome heading are further categorized as Cognitive, Affective and Tangible. Valuable goals can be derived from the outcomes and activities listed in these three sections of the Instructional Outcomes category. The Huff inventory is a fertile resource for planning an educational goals inventory. However, the outcomes were not stated in measurable terms.

The Education Commission of the States published Objectives for Career and Occupational Development (1971) as an activity of its project entitled National Assessment of Educational Progress (NAEP). The NAEP objectives are arranged in five categories: making career decisions, gaining occupational skills, obtaining general education capabilities, practicing effective work habits, and developing positive attitudes toward work. The NAEP inventory is unique in that it outlines the levels of attainment of each of the objectives for individuals at age 9, 13, 17 and in early adulthood.

Harold Starr (1970) prepared a System for State Evaluation of Vocational Education with a team of experts from The Center for Vocational and Technical Education, Ohio State University, and

elsewhere. An appendix (p. 29) contains educational goals and objectives for vocational education. Most of the goals are input and procedures goals rather than output goals. Input goals include enrollment in vocational education programs of persons receiving public assistance and persons with physical or mental handicaps. Procedural goals include long range plans, advisory committees, and simulated work experiences in the classroom. The 1969 document was an interim report which may have undergone further refinement.

Mount San Jacinto (Community) College in Gilman Hot Springs, California maintains a list of Measurable Institutional Objectives which it modifies from year to year. The 1971-72 list contains objectives for general education, transfer education, community services, student personnel services, remedial education, athletics, and occupational preparation. Most of the Mount San Jacinto objectives include specific criteria by which achievement of the objectives can be determined. For example, 90 percent of reading class students who complete the semester are expected to increase their reading skills by at least one grade level. Eighty percent of minority students who are in peer tutoring and counseling programs are expected to persist through the semester.

RESEARCH METHOD

The initial activity in the project was to identify research questions which should be answered by the investigation. Once the research questions were stated, data-gathering instruments were designed to obtain information useful in answering the questions. These questions are listed below, with a description of the relevant data-gathering instruments.

A group of consultants (Appendix G) participated in refining the procedures and instruments of the study. Each consultant was chosen because of his distinguished contributions to post-secondary occupational-technical education and educational research.

Community College Population

The study population consisted of all 720 public comprehensive two-year colleges in the United States which began offering occupational-technical programs prior to September, 1970. These colleges could be expected to have sufficient numbers of former students to warrant follow-up research.

Data-Gathering Instruments

Community College Questionnaire

A twelve-item questionnaire (Appendix B) was designed to solicit information about follow-up studies and related research activities which could not be obtained directly from a content analysis of follow-up reports. The questionnaire was to obtain information useful in answering the following research questions:

1. How many community colleges conduct follow-up studies of their former occupational-technical students?

2. What motivates community colleges to conduct follow-up studies of former occupational-technical students?

3. Which college personnel are most important in the design of follow-up studies of former occupational-technical students and what external design sources are used?

4. If the follow-up study designers have attempted to consult follow-up studies conducted by other colleges, are the designers satisfied with the availability of other studies?

5. In addition to follow-up studies, how many colleges conduct exit interviews of departing students, and how many make comparison studies regarding non-students?

6. How many community colleges have had their students included in follow-up studies designed and conducted by some off-campus agency?

Several items were included in the questionnaire to confirm whether the college met conditions for inclusion in the study as noted on the previous page. A field test and revision of the questionnaire was conducted by submitting it to several college presidents in the Virginia Community College System.

Follow-Up Study Coding Instrument

A three-part, 66-item coding instrument (Appendix D) was designed to analyze the content of the follow-up study reports which were furnished by cooperating institutions. A panel of consultants (Appendix G) reviewed and approved the coding instrument as being suitable for answering the following research questions:

7. What student populations or samples are studied and how are subjects selected?

8. How many attempts are made to obtain student replies, and what response rates are obtained with varying numbers of contacts?

9. What is the general format of reports? For example, what is their length, how many questions are asked, what balance exists between narrative and data, and how much unrelated material is included?

10. Are statistical procedures employed, such as tests of non-response bias or of the inferential value of sample-based findings?

11. What number of community colleges obtain employer evaluations of skills and work attitudes of former students?

12. Are data commonly controlled for pre-enrollment experiences of former students? For example, do colleges report current salaries of former students without identifying students who had substantial prior experience or education in their occupation?

13. Do colleges conduct longitudinal studies in order to measure career advancement or obtain more mature reflections of their former students?

14. Given frequently low student questionnaire response rates, are questions being asked which could be eliminated by obtaining the data from college records?

15. How many colleges request baccalaureate and post-baccalaureate transfer information from former occupational-technical students?

16. How many colleges solicit educational evaluations and advice from former students?

17. To what extent are follow-up studies designed to measure attainment of educational goals?

18. Which goals receive the greatest amount of attention by college follow-up researchers?

Educational Goals Inventory

Research questions 17 and 18 required the development of an educational goals inventory for post-secondary occupational-technical education. This section describes the development of the goals inventory, which appears in the next section of this report. The goals in the Educational Goals Inventory for Community College Occupational-Technical Education were derived from three types of sources: community college catalogues, published works on the goals of education, and ideas of the project staff and consultants.

The catalogues of 42 community colleges (Appendix A) were reviewed for statements of educational goals. The colleges were selected by a fixed interval procedure from a list arranged alphabetically within states. Goals were taken primarily from each catalogue's statement of purpose or philosophy, from the introduction to sections on career programs, and from course descriptions. In order to enlarge the inventory, publications on educational goals were reviewed for ideas which did not receive attention in the college catalogues. This goal-related literature is discussed in the preceding section.

The educational goals were arranged in six categories for ease in presentation. These goals were reviewed by the consultants who found them to be satisfactory after modification. Examples of information which might be gathered by community college personnel to measure attainment of goals were also selected. The sample evaluation measures are presented as examples and not as a comprehensive plan.

Procedure

Project Questionnaire

In February 1973, the community college questionnaire (Appendix B) was sent to the colleges in the study population. A covering letter was included which described the general nature of the investigation and invited colleges to furnish reports of their follow-up studies of occupational-technical students. On March 5, there was a second mailing which included a reminder letter (Appendix C) and a duplicate of the original letter and questionnaire. Table I shows the status of returns at the April 15 cut-off date. Completed questionnaires were received from 72.5 percent of the eligible two-year colleges.

Follow-Up Study Content Analysis

Reports from 85 institutions (Appendix F) were included in the content analysis. Each study was coded in accordance with the coding instructions which appear in Appendix E. Not every item submitted by community colleges was considered by the project staff to be appropriate for content analysis. Table 2 shows the final disposition of materials from the 149 institutions which stated a willingness to furnish copies of follow-up studies. Eighteen colleges failed to send reports, and 18 submitted Vocational Education Completions and Placement Reports (OE Form 3139). Such reports are required by the U. S. Office of Education and were not considered by the authors to represent college-initiated follow-up research. Therefore, the federal reports were excluded from the content analysis of follow-up studies. The 28 other reports not accepted for coding consisted of a variety of documents which could not be considered follow-up studies. A brief list of examples appears below:

Student questionnaires not accompanied by reports

Demographic data and/or attitudes of present (not former) students

Follow-up reports limited to former baccalaureate-transfer students

Periodical articles about follow-up studies

Correspondence regarding follow-up research

Service area manpower needs studies

In cases where a college submitted a series of annual reports concerning consecutive graduating or departing classes, only the most recent study was coded. It was assumed that the most recent study reflected the college's most advanced research emphases and procedures. In cases where colleges submitted a group of studies concerning the same students, the group of studies was coded in the aggregate. For example, a college might publish its follow-up study in parts or volumes, one dealing with attrition, another with post-college employment, and another with continuing education.

After the initial coding, an interim tabulation of results and examples of the coding procedure were reviewed by the consultants. Following suggestions by the consultants, each of the 85 reports was coded a second time. The purposes of the second coding were to make minor changes in procedure, to insure coding accuracy, and to utilize accumulated coding expertise.

TABLE I

Questionnaire and Report Response by State

State	Two-year Colleges	Eligible Institutions	Valid Questionnaires Returned	Percent Response Rate	Usable Reports Provided
Alabama	23	17	10	59	0
Alaska	8	7	4	57	0
Arizona	13	12	7	58	1
Arkansas	8	2	2	100	1
California	99	93	72	77	10
Colorado	16	16	15	94	1
Connecticut	22	12	8	67	1
Delaware	4	2	1	50	1
D. C.	3	0	0	0	0
Florida	32	27	23	85	5
Georgia	23	12	7	58	1
Hawaii	6	6	5	83	2
Idaho	4	2	2	100	0
Illinois	55	46	32	70	8
Indiana	4	1	0	0	0
Iowa	26	16	13	81	4
Kansas	25	19	18	95	0
Kentucky	23	14	9	64	0
Louisiana	8	5	2	40	0
Maine	6	2	2	100	0
Maryland	21	15	9	60	5
Massachusetts	33	15	12	80	1
Michigan	37	33	21	64	4
Minnesota	23	19	15	79	1
Mississippi	24	18	12	67	1
Missouri	22	16	12	75	2
Montana	3	3	3	100	0
Nebraska	13	7	6	86	1
Nevada	3	1	1	100	0
New Hampshire	4	0	0	0	0
New Jersey	22	13	10	77	4
New Mexico	9	5	2	40	0
New York	61	42	33	79	8
North Carolina	66	29	22	76	1
North Dakota	5	5	3	60	1

TABLE 1--Continued

State	Two-year Colleges	Eligible Institutions	Valid Questionnaires Returned	Percent Response Rate	Usable Reports Provided
Ohio	38	16	11	69	3
Oklahoma	18	12	8	67	0
Oregon	16	13	8	62	1
Pennsylvania	49	31	17	55	4
Rhode Island	3	1	0	0	0
South Carolina	26	7	4	57	0
South Dakota	2	0	0	0	0
Tennessee	18	6	6	100	0
Texas	59	42	28	67	4
Utah	5	4	4	100	0
Vermont	5	0	0	0	0
Virginia	27	18	15	83	4
Washington	27	25	20	80	3
West Virginia	7	3	3	100	0
Wisconsin	31	3	3	100	2
Wyoming	7	7	2	29	0
Totals	1,092	720	522	72.5	85

TABLE 2

Selection of Reports for Coding

	N
Reports coded	85
OE Form 3139, Vocational Education Completions and Placement Report	18
Other reports not accepted for coding	28
Failed to send reports	18
Total colleges pledging to furnish reports	149

EDUCATIONAL GOALS INVENTORY

One important objective of this investigation was to determine whether community college follow-up studies are designed to measure attainment of educational goals. It was necessary, therefore, to construct an educational goals inventory in order to determine whether the data gathered or reported in follow-up studies were appropriate for measuring goal attainment. The goals in the inventory were derived from community college catalogues, the literature of post-secondary education, and ideas of the project staff and consultants. Each goal is accompanied by one or more examples of the kind of data which can be used to measure goal attainment. The goals appear on the following pages, arranged in six categories:

1. General benefits to the community
2. Recognition of individual needs
3. Self-awareness and career choice
4. Skills and attitudes for employment
5. Rewarding lives
6. Good citizenship

Educational Goals Inventory for
Occupational-Technical Programs in Two-Year Colleges

I. TO BENEFIT THE SERVICE AREA GENERALLY, BY PROVIDING INCREASED EDUCATIONAL OPPORTUNITIES, CONTRIBUTING TO MANPOWER DEVELOPMENT AND STIMULATING FINANCIAL GROWTH.

Goals	Sources	Sample Evaluation Measures
1. To provide an opportunity for post-secondary education for all those who can profit from such education, with special emphasis on persons who might not meet traditional selective entrance requirements.	Catalogues	Number of persons not admitted due to lack of facilities. Number of students admitted who were rejected elsewhere.
2. To provide instruction at a time and place which makes it possible for students to attend.	Starr, 1969, p. 31.	Number of non-students and former students who fail to take advantage of a course or a program for reasons of location or of class hours.
3. To provide instruction at a cost to students which is modest enough to present no barrier to enrollment.	Catalogues	Number of non-students and former students who fail to enroll because of high cost and/or lack of financial aid.
4. To meet local manpower needs in government, business, agriculture, industry and service organizations.	Catalogues	Reports of job vacancies and projected needs.
5. To promote the economic development of the service area.	Catalogues	Location where former students are employed, are paying taxes, and are spending and investing their money.

II. TO RECOGNIZE DIFFERENCES IN MEETING THE NEEDS OF MEMBERS OF THE COMMUNITY.

Goals	Sources	Sample Evaluation Measures
6. To meet individual student educational interests.	Catalogues	Number of former students who were forced to enter second choice programs.
7. To meet the re-training needs of workers whose skills have become obsolete or whose career field is declining in importance.	Catalogues	Number of such former students and their adjustment success. Employers' evaluations.
8. To meet the need for upgraded skills among workers whose training is not adequate to allow them to advance in their careers.	Catalogues	Same as above.
9. To meet training needs of students who must acquire career-entry skills.	Catalogues	Number of such former students and their rate of curriculum related employment. Employers' evaluations.
10. To provide equal opportunity for racial and ethnic minority group persons who are members of the service area.	Catalogues	Number of such former students relative to their numbers in the community and their comparative success rate (enrollment and post-enrollment).
11. To provide special opportunities for physically handicapped persons in order to help them become productive citizens.	Catalogues	Same as above.
12. To improve learning skills of persons who have not benefited adequately from preparatory education.	Starr, 1969, p. 31.	Same as above.

Goals	Sources	Sample Evaluation Measures
13. To provide special services for members of the community who face a variety of enrollment barriers. For example, campus nurseries for mothers and student financial aid for students with financial need.	Staff and Consultants	Same as number 10.

III. TO HELP STUDENTS UNDERSTAND THEMSELVES IN RELATION TO POSSIBLE EDUCATIONAL AND CAREER ALTERNATIVES SO THAT THEY CAN MAKE APPROPRIATE DECISIONS.

Goals	Sources	Sample Evaluation Measures
14. To help students understand their abilities.	Catalogues	Former students' comments on achievement of this goal.
15. To help students understand their aptitudes.	Catalogues	Same as above.
16. To help students understand their interests.	Catalogues	Same as above.
17. To carefully screen and advise students in such a way that program suitability will insure program completion on schedule by substantial numbers of students.	Huff, 1971, p. 24.	Graduation rates and time required for program completion by curriculum, race, source high school, test score, etc.
18. To insure that as many students as possible who withdraw from the college will be those who do so for positive rather than negative reasons.*	Huff, 1971, p. 21, 22, 23.	Students' reasons for abandoning or postponing their educational activities at the institution.

*(Examples of positive reasons are relocation, military service, change in educational goals. Examples of negative reasons are lack of motivation, lack of funds, low achievement, personal problems.)

Goals	Sources	Sample Evaluation Measures
19. To help students understand their future needs and expectations.*	Staff and Consultants	Former students' comments on the achievement of this goal.
20. To help students become aware of a broad range of career opportunities.	Catalogues	Employee turnover rates.
21. To help students become familiar with working conditions of a range of career opportunities. For example, hours, wages, vacations, etc.	Catalogues	Former students' comments on the achievement of this goal.
22. To make students aware of the impact of social and technological change on occupations.	National Assessment of Educational Progress, 1971, p. 21.	Same as above.

IV. TO PROVIDE STUDENTS WITH EMPLOYMENT SKILLS AND ATTITUDES WHICH WILL ENABLE THEM TO OBTAIN EMPLOYMENT, TO PERFORM THEIR ASSIGNMENTS PROPERLY, AND TO ADVANCE WITH EXPERIENCE.

Goals	Sources	Sample Evaluation Measures
23. To provide students with the manipulative skills and technical knowledge necessary to perform their assignments.	Catalogues	Rate of former student curriculum-related employment. Employer evaluation of former students' job performance.
24. To provide students with the training needed to advance in their careers with experience.	Catalogues	Former student advancement in their careers, to include self-employement.

*(For example, paramedical personnel should be helped to realize that they are not likely to advance to important leadership positions in the health services field without additional training beyond the associate degree.)

Goals	Sources	Sample Evaluation Measures
25. To develop effective student work habits.	National Assessment of Educational Progress, 1971, pp. 50-55.	Employers' opinions on such questions as whether former students make proper use of time, plan their work, and check their own work for accuracy and completeness.
26. To develop positive student attitudes toward work.	National Assessment of Educational Progress, 1971, pp. 50-56.	Employers' opinions on such questions as whether former students hold competence in high regard, whether they seek personal fulfillment through their achievement, etc.
27. To develop effective student human relations skills.	Catalogues	Employer and former student reports of unnecessary difficulties in dealing with supervisors, colleagues and subordinates.
28. To enable students to successfully complete their career certification or licensing examinations, if required.	Huff, 1971, p. 21.	Names of all former student-candidates for license or certificate and their success or failure.
29. To enable students to gain entry into their appropriate career-related association, society or union.	Staff and Consultants	Names of students who have sought membership and their success or failure.
30. To provide students with job-seeking skills.	Illinois Standards and Criteria, p. 31.	Employer and former student opinion on whether students knew how best to conduct interviews, to complete application forms, to write letters of application, where to learn about vacancies, how to choose and notify references, etc.

Goals	Sources	Sample Evaluation Measures
31. To provide students with a knowledge of job safety practices.	Catalogues	Former student accident rates.
32. To provide students with those general education competencies which are most closely related to employment success.	Catalogues	Course grades and/or test scores of written expression, reading speed and comprehension, numerical ability, and speaking ability.

V. TO MAKE POSSIBLE A MORE REWARDING LIFE FOR THE STUDENTS IN ITS COMMUNITY.

Goals	Sources	Sample Evaluation Measures
33. To provide opportunities for student satisfaction during his period of training.	Staff and Consultants	Student attitudes toward the personal fulfillment aspect of their college experiences.
34. To provide an opportunity for socio-economic mobility.	Catalogues	Former student educational level, career field prestige and other SES factors compared with those of parents.
35. To provide students with an opportunity to obtain skills which will result in a reliable and adequate income.	Catalogues	Salaries and wages of former students.
36. To provide students with an opportunity to choose and obtain employment from which they can derive occupational satisfaction.	Catalogues	Former student reports of job satisfaction.
37. To help students develop skill in the use of leisure time.	Catalogues	The uses former students make of their leisure time. Student evaluations of leisure time activities.

Goals	Sources	Sample Evaluation Measures
38. To help students develop social skills and meet new friends.	Huff, 1971, p. 27.	Former student opinions on the attainment of this goal.
39. To help students develop the capacity to cope with disturbing situations such as personal failure or economic problems.	Catalogues	Former student reports of crises and whether their community college education and experiences helped equip them to overcome difficulties.
40. To help students become knowledgeable consumers and skillful money managers.	Starr, 1969, p. 30.	Former students' spending patterns and their opinions on their ability to manage financial affairs.

VI. TO ASSIST STUDENTS IN BECOMING SELF-SUFFICIENT, RESPONSIBLE CITIZENS.

Goals	Sources	Sample Evaluation Measures
41. To develop students' leadership skills.	Catalogues	Former student leadership in community affairs and on the job.
42. To develop a knowledge of and a respect for democratic principles.	Catalogues	Former student voting and jury duty rates.
43. To develop student respect for a just, yet orderly, society.	Huff, 1971, p. 22.	Former student law violations compared to the larger population.
44. To develop in students a sense of civic pride and community involvement.	Huff, 1971, p. 22.	Former student activity in service groups, such as Boy Scouts, Little League, Lions Club, National Guard, etc.

FINDINGS

This section presents the findings of the research project in the form of answers to the eighteen research questions listed in Section II, Research Method. The first group of findings (research questions 1 through 6) is based on data obtained by questionnaires received from 522 community colleges (73 percent of the original 720). The second group of findings (questions 7 through 18) is based on a content analysis of follow-up study reports submitted by 85 community colleges.

The writers believe that the inferential value of the questionnaire data is not seriously biased by the 27 percent non-response rate. However, the findings which are based on the content analysis of follow-up reports are not representative of all institutions, because less than one-half conducted follow-up studies resulting in written reports (Table 3). The 85 reports used in the content analysis represent follow-up studies which are more sophisticated than the average community college follow-up research. Therefore, the findings in this national review may well be biased toward overstating the quality of follow-up research by community colleges.

Research Questions

1. How many community colleges conduct follow-up studies of former occupational-technical students?

Eighty-seven percent of the 520 institutions which answered the questionnaire item reported that they had conducted follow-up studies of former occupational-technical students (Table 3). However, approximately one-half of this group reported conducting only informal studies which did not result in written reports. Of those surveyed, 233 community colleges reported conducting formal follow-up research, but only 149 institutions agreed to furnish copies of their reports. Of those which agreed, 85 sent reports acceptable for content coding, 46 sent reports not acceptable for coding, and 18 failed to send reports (Table 2). Thus, a large percentage of the institutions that reported conducting formal follow-up research may not actually have completed formal studies.

2. What motivates colleges to conduct follow-up studies of former occupational-technical students?

The questionnaire item on this subject required respondents to state whether each of five motivations was (1) very important, (2) of some importance, or (3) of little or no importance.

Table 4 presents these motivations in descending order of importance. It can be seen that the questionnaire item did not discriminate dramatically between the importance of potential motivations. Curriculum evaluation was the motivation most often ranked very important or of some importance. Evaluation of college personnel was the least important motivation.

TABLE 3

Status of Follow-Up Studies of Former Occupational-Technical Students

	N	%
Conducted follow-up studies and promised copies of reports to be reviewed	149	29
Conducted follow-up studies, but chose not to send copies	84	16
Conducted informal studies for which there are not written reports	221	42
Had not conducted follow-up studies of former O-T students	66	13
Total usable responses	520	100

TABLE 4

Research Motivations Rated Very Important or Of Some Importance

	N	%
Curriculum evaluation	355	91
Accountability to the public	325	83
Requests from governing or accrediting authorities	295	76
Student services evaluation	291	75
Personnel evaluation	233	57
Total usable responses 390		

3. Which community college personnel are most important in the design of follow-up studies of former occupational-technical students and what external design sources are used?

The questionnaire item concerning this research question asked respondents to rank design sources as (1) very important, (2) of some importance, or (3) of little or no importance (Table 5).

The least important factors in shaping the design of community college follow-up studies were external consultants and publications on methods of conducting follow-up studies. Administrators other than research staff members were slightly more important than faculty members in follow-up study design. Less than one-half of the respondents indicated that research staff members were important in follow-up study design.

TABLE 5

Design Sources Rated Very Important
or Of Some Importance

	N	%
Administrators	346	88
Faculty members	321	82
Other follow-up study designs	247	63
College's research staff	179	46
Published guides or texts	66	17
Outside Consultants	53	14
Total usable responses 391		

4. If follow-up study designers have attempted to consult follow-up studies conducted by other colleges, are the designers satisfied with the availability of other such studies?

About one-third of the community colleges responding indicated that no attempt had been made to refer to the design of other follow-up studies in planning their own follow-up research (Table 6). Of the college personnel who attempted to borrow design ideas, less than one-third reported satisfaction with the availability of other follow-up studies.

TABLE 6

College Reports of Satisfaction with
Availability of Follow-Up Studies Conducted
at Other Community Colleges

	N	%
Satisfied	86	18
Not Satisfied	208	45
No attempt to consult other studies	176	37
Total usable responses	470	100

5. In addition to follow-up studies, how many colleges conduct exit interviews of departing students, and what number make comparison studies regarding non-students?

Seventy percent of responding colleges reported that exit interviews of departing students are regularly conducted on their campuses (Table 7).

TABLE 7

Community Colleges Which Regularly
Conduct Exit Interviews

	N	%
Conduct exit interviews	362	71
Do not conduct exit interviews	151	29
Total usable responses	513	100

Studies of non-students are useful for comparing jobs, salaries, and citizenship of residents who have not attended the community college with those who have. Other information such as non-student educational interests and reasons for not enrolling can also be helpful. Of the colleges responding, one-third reported that they had conducted studies of non-students in their service areas (Table 8).

TABLE 8

Community Colleges Conducting Research
Studies of Non-Student Populations

	N	%
Conducted non-student research	164	32
Did not conduct non-student research	350	68
Total usable responses	514	100

6. How many community colleges have had their former occupational-technical students included in follow-up studies designed and conducted by some off-campus agency?

Less than one-fourth of the respondents indicated that their former students had been included in follow-up studies conducted by state or regional follow-up researchers (Table 9).* It appears that most community colleges must rely on their own efforts in the follow-up study of former occupational-technical students.

*This was not a forced choice questionnaire item. Respondents were to supply the name of the researcher and the title of the research report. It is possible that some college personnel were not able to recall this information.

TABLE 9

Colleges Reporting Students Included
in Statewide or Regional Follow-Up
Studies Since January, 1967

	N	%
Students had been included in off-campus studies	115	22
No report of off-campus follow-up	405	78
Total colleges responding	520	100

7. What student populations or samples are studied and how are subjects selected?

Of the follow-up reports containing a description of subjects, more than three-quarters of the reports concerned only graduates (Table 10).

TABLE 10

Selection of Subjects Based
on Program Completion

	N	%
Graduates only	61	77
Both graduates and non-graduates	18	23
Non-graduates only	0	0
Total reports with indication	79	100
Reports with no indication	6	

Total college populations, rather than sub-populations or samples, were included in nearly three-quarters of the 79 studies which adequately described subjects (Table 11). Such populations normally include all graduates or all former students who were graduated or enrolled during a stated period of time. The term sub-population refers to a portion of the population chosen by criteria of hours completed, curriculum in which enrolled, or other special designation. By contrast, samples are chosen by random or systemized means in order to insure that the subjects are representative of the larger population from which they are selected.

Of the 21 institutions which reported selecting samples or sub-populations the great majority chose arbitrary sub-populations (Table 12). An arbitrary sub-population was most often a designated curricular group or a group of students who accumulated some specific number of credit hours. Only two studies used representative sampling procedures.

TABLE 11

Choice of Total Population Versus
Sub-Population or Representative Sample

	Total Population		Sub-Population or Sample	
	N	%	N	%
Graduates only	50	63	11	14
Graduates and non-graduates	8	10	10	13
Total reports with indication	58	73	21	27
Grand Total 79				

TABLE 12

Method of Selecting Subjects
from a Total Population

	N	%
Arbitrary sub-population	18	90
System sample	1	5
Random sample	1	5
Total indicating selection method	20	100
Reports with no method indicated	1	

8. How many attempts are made to obtain student replies and what response rates are obtained with varying numbers and types of student contact?

Of the 85 reports reviewed, nine contained no information about response rates or other data from which response rates could be calculated. Only 28 reports specified more than one student contact and all others were assumed to have been based on only one contact, although such an assumption may not be justified (Table 13).

Table 14 is a frequency distribution of response rates for four categories of studies: (1) all studies, (2) those which report two mail contacts, (3) those which report three mail contacts, and (4) those which report the use of telephone contacts with students regardless of mail procedures. The distributions of student response rates are broad and bimodal. Although three mail contacts and telephone contacts appear to have positive effects on response rates, the numbers involved are too small to justify firm conclusions.

TABLE 13

Reports of Multiple Mail Contacts
and Telephone Contacts

	N	%
Reports specifying two mail contacts	24	32
Reports specifying three mail contacts	4	5
Reports specifying telephone contacts*	14	18
Total reports with response data 76		

*Regardless of mail contacts.

TABLE 14

Student Response Rates with Varying Amounts
and Kinds of Contacts

Percent Returns	All Reports	2 Mail Contacts	3 Mail Contacts	Telephone*
1-10				
11-20				
21-30	6	2		1
31-40	13	2		2
41-50	4	3		
51-60	10	4		1
61-70	10	1	1	
71-80	14	5	1	2
81-90	8	3	1	4
91-100	11	4	1	4
Totals	76	24	4	14

*Regardless of mail contacts.

9. What is the general format of reports? For example, what is their length, how many questions are asked, what balance exists between narrative and data, and how much unrelated material is included?

Report length of community college follow-up studies of former occupational-technical students including appendices is typically 20 pages or fewer (Table 15).

The number of questions asked of students varies broadly. Of the 51 reports which included sample questionnaires, 70 percent were found to contain 20 questions or fewer (Table 16). It should be noted that counting the number of questionnaire items is an imprecise technique due to differences in numbering systems. One college may obtain the

same amount of data in one three-part question as another collects in three separate questions. Informal adjustments were made to partially correct for this problem.

TABLE 15

Length of Reports

Number of Pages	N*	%
1-10	34	39
11-20	16	19
21-30	13	15
31-40	7	8
41-50	3	4
51-60	5	6
61-70	3	4
More than 70	4	5
Total reports	85	100

*The mean number of pages was 24.

TABLE 16

Number of Items in Questionnaires

Number of Questions	N	%
1-10	19	37
11-20	17	33
21-30	7	14
31-40	3	6
41-50	2	4
51-60	2	4
61-70	1	2
Total reports with sample questionnaires	51	100

The balance between data and narrative in research reports was coded in three categories appearing in Table 17. Approximately one-half of the reports contained data in tables, graphs, charts and lists, with very little interpretation or explanation of findings. Just under one-half of the 85 studies presented a mix of data and narrative.

TABLE 17

Balance Between Narrative and Raw Data

	N	%
Data predominantly	43	50
Data and narrative	38	45
Narrative predominantly	4	5
Total reports	85	100

It was found that slightly less than one-half of the follow-up reports contained information on both transfer and occupational-technical students (Table 18). Only three reports of the 85 could be considered as unrelated documents used to convey follow-up data. This group contained a faculty bulletin, a placement newsletter, and a college newsletter.

TABLE 18

Follow-Up Studies Pertaining To Transfer As Well As To Occupational-Technical Students

	N	%
Reports on O-T students	43	51
Reports on both O-T and transfer students	42	49
Total	85	100

10. Are statistical procedures employed, such as tests of significance or of non-response bias?

Only one of the follow-up study reports reviewed contained any indication of the use of a statistical test or other investigation of non-response bias (Table 19). Six reports employed some type of significance test either to determine whether samples-based findings were representative of a larger population or to compare results from two or more subgroups (Table 20).

11. What number of community colleges obtain employer evaluations of skills and work attitudes of former students?

Only 6 of the 85 community college follow-up reports included employer evaluations of former students (Table 21).

TABLE 19

Follow-Up Studies Reporting
A Test of Non-Response Bias

	N	%
No test of non-response bias	84	99
Employed a test of non-response bias	1	1
Total reports reviewed	85	100

TABLE 20

Follow-Up Studies Reporting
Tests of Significance

	N	%
No tests of significance	79	93
Employed tests of significance	6	7
Total reports reviewed	85	100

TABLE 21

Follow-Up Reports Containing Employer
Evaluation of Former Students

	N	%
Contain employer evaluations	6	7
No employer evaluations	79	93
Total reports	85	100

12. Are data controlled for pre-enrollment experiences of former students? For example, do colleges report current salaries of former students without isolating students who had substantial prior experience or education in their occupations?

Only six of the follow-up reports contained distinctions between novice and veteran workers in reporting such data as salaries and advancement (Table 22). However, none of the six made systematic efforts to separate findings for beginners and experienced workers. Rather, they made isolated notations on career longevity.

TABLE 22

Reports Containing Distinctions Between New and Experienced Workers

	N	%
Distinction made	6	7
No distinction made	79	93
Total reports	85	100

13. Do colleges conduct longitudinal studies in order to measure career advancement or to obtain more mature reflections of former students?

Longitudinal studies are those which periodically contact former students during the years after college. Such studies might, for example, obtain information from the same students after 1, 5 and 10 years. Only five longitudinal studies were identified (Table 23). Twenty percent of the follow-up studies did compare responses of former students from different graduating or departing classes. Such studies are not truly longitudinal but are commonly termed comparative.

TABLE 23

Longitudinality of Follow-Up Studies

	N	%
Longitudinal	5	6
Comparative	17	20
One year or class only	63	74
Total	85	100

14. Given frequently low student questionnaire response rates in community college follow-up studies of former occupational-technical students, are questions being asked which could be eliminated by obtaining data from college records?

Nearly 70 percent of the 51 student questionnaires required students to supply data which might be obtained from college records (Table 24). Source high school, age, college major, credit hours earned and other registrars' data were not only requested of students but were also among the first questions presented in questionnaires.

Another category of information, "enrollment period data" (Table 24), is also often requested. For example, information on student financial aid and participation in student activities was requested by many follow-up researchers. Such data might be obtained by means other than student questionnaires.

TABLE 24

Questionnaires Obtaining Registrars' Data or Other Enrollment Period Data

	N*	%*
Registrars' data	35	69
Enrollment period data	16	31
Total questionnaires 51		

*Addition to 51 and 100 percent is coincidental, since some questionnaires requested both registrars' data and enrollment period data.

15. How many colleges request baccalaureate and post-baccalaureate transfer information from former occupational-technical students?

16. How many colleges solicit educational evaluations and advice from former students?

Seventy-eight percent of 51 student questionnaires were found to contain items which requested students to evaluate the community college they had attended (Table 25). A similar number of questionnaires solicited baccalaureate and post-baccalaureate information from students. The prevalence of baccalaureate-oriented questions would seem to indicate concern for college transfer, even though occupational-technical programs are designed to provide preparation for employment.

TABLE 25

Questionnaires Obtaining Student Transfer Information and Student Advice or Evaluations

	N	%
Request college transfer information	41	80
Solicit student advice and evaluation	40	78
Total questionnaires 51		

17. To what extent are follow-up studies designed to measure attainment of educational goals?

18. Which goals received the greatest amount of attention by community college follow-up studies of former occupational-technical students?

The data collected or reported in 85 follow-up studies were compared with 44 educational goals for occupational-technical education. This content analysis procedure, described in Section II, revealed that the research emphasis of the group of follow-up reports was primarily on employment, income, and advancement of former students and on financial and manpower development of communities (Table 26). More than one-half of the studies collected or reported data useful in measuring the attainment of these five highly tangible, economic goals.

Each of the other 39 goals in the inventory was important in the design of less than one-half of the reports reviewed. The goals of college satisfaction, program completion, and career satisfaction were important in the design of between 25 and 31 percent of the studies. All other goals were given attention by less than 20 percent of the reports.

The authors recognize that few colleges have the resources to design and implement comprehensive follow-up studies which would obtain data relevant to all the educational objectives in an extensive 44-item inventory. However, there are several important goal areas which community colleges should not ignore. For example, 13 or fewer of the 85 studies were concerned with students' awareness of their interests, abilities or career alternatives. Only eight studies investigated ethnic or racial differences in student outcomes. Just five studies attempted to identify the college's influence on socio-economic mobility.

Authorship of Reports

Only 64 of the 85 follow-up reports showed the authors' identity (Table 27). More than three-fourths of these 64 reports were conducted in the office of institutional research (41%) or the placement office (36%).

TABLE 26

Follow-Up Studies Giving Attention to Each of 44 Educational Goals

Goals	N	%
Skills for employment	82	96
Skills for adequate income	60	71
Area manpower needs	51	60
Economic development	51	60
Skills for advancement	50	59
Opportunity for student satisfaction	26	31
Program completion	24	28
Opportunity for career satisfaction	21	25
Individual educational interest	16	19
Eliminate financial barriers to enrollment	14	16
Career information	13	15
Job seeking skills	13	15
"Open door" opportunities for education	12	14
Student's knowledge of aptitudes	12	14
Minimize college-caused attrition	12	14
Better student understanding of interests	11	13
Better student understanding of abilities	10	12
Upgraded skills for experienced workers	10	12
Effective student human relations skills	9	11
Convenient time and place	8	9
Equal opportunity for minorities	8	9
Employee retraining needs	7	8
Improved learning skills	6	7
Effective work habits	6	7
Positive attitudes toward work	6	7
Information on working conditions	5	6
General education competencies	5	6
Socio-economic mobility	5	6
Social skills and new friends	4	5
Understanding of future needs	3	4
Leadership skills	3	4
Career entry skills	2	2
Elimination of enrollment barriers	2	2
Career licensure or certification	2	2
Society or union membership	2	2
Leisure time fulfillment	2	2
Civic pride	2	2
Opportunities for the handicapped	1	1
Awareness of change in careers	1	1
Knowledge of democratic principles	1	1
Ability to cope with personal problems	0	0
Consumer education	0	0
Law abiding citizenship	0	0
Job safety	0	0

TABLE 27

Title or Office of Follow-Up Report Authors

	N	%
Director or Office of Institutional Research	26	41
Director or Office of Placement	23	36
Division or Department	6	9
Counselor	4	6
Dean of Students or Office of Student Affairs	3	5
Director of Instructional Services	2	3
Total reports with authorship indicated	64	100

SUMMARY

This report reviewed follow-up studies of former occupational-technical students at community colleges throughout the nation. The purpose of the review was to evaluate the effectiveness of follow-up studies in measuring attainment of educational goals, as stated in community college catalogues and literature. This evaluation was made by studying research emphases, motivations, and procedures for studies conducted by community college respondents.

Procedure

The study population consisted of all 720 community colleges in the United States which began offering occupational-technical education prior to September, 1970. Data were gathered in two separate procedures. First, a questionnaire was returned by 522 community colleges, along with copies of follow-up study reports. The questionnaire provided information on research motivations and frequency. Second, 85 follow-up study reports were content coded by means of a content analysis coding form. A 44-item goals inventory for occupational-technical education was prepared in order to measure the educational goal emphases of follow-up studies.

Findings

Nearly all community colleges conducted some sort of follow-up study of former occupational-technical students. However, less than one-half conducted formal studies resulting in written reports. The range of quality among research reports was broad. Studies were conducted for a variety of reasons, including curriculum evaluation, external accountability, and student services evaluation. Follow-up research was designed by college staff members with very little outside consultant advice or reference to texts and guides. Approximately 60 percent of community colleges attempted to consult follow-up studies conducted by other institutions as they designed their own follow-up research. However, less than one-third of these were satisfied with the availability of other studies as a design source.

Over three-quarters of the 85 follow-up studies which were reviewed excluded non-graduates. In their follow-up research community colleges typically attempted to contact all former students of a given year or graduating class. Approximately one-fourth chose a sub-population or sample.

Many follow-up studies of former occupational-technical students contained inadequate information about procedures used. Based on the information available, around 60 percent of the community colleges appear to have made only one mail contact with students in order to obtain data, and the remainder employed successive contacts.

Follow-up reports were typically less than 20 pages in length. The longer reports often included copious details such as lists of names and addresses of students, employers, etc. Of the student questionnaires reviewed, 70 percent contained 20 questions or fewer. Just over one-half of the reports consisted primarily of uninterpreted data. Such reports contained lists, tables and charts which the reader must interpret in his own fashion. Statistical analysis did not typically include tests of non-response bias or of the inferential value of samples-based findings. Less than 10 percent of the follow-up studies contained employer evaluations of student preparation or information on previous work experience. A similarly small percentage of reports was longitudinal in nature.

Questionnaires were included with 51 of the 85 reports which were in the content analysis group. Approximately 70 percent of the questionnaires contained items designed to obtain data which are often available in registrars' files, such as subject major and source high school. Questionnaire items on student transfer to other institutions and on student opinion of courses, counseling, and facilities were very common and appeared in approximately 80 percent of the questionnaires.

Each report was reviewed in detail to determine whether it contained useful data for measuring goal-attainment, based on the 44-item goals inventory for occupational-technical education. Attainment was measured for only five goals in one-third or more of the reports. These goals concerned employment, income, career advancement, manpower development and economic growth. The attainment of such goals as equality of opportunity, positive attitude toward employment, and socio-economic mobility was evaluated by fewer than 10 percent of the institutions.

RECOMMENDATIONS

The authors are aware that community colleges are constrained by limited resources for institutional research. However, follow-up research has great importance in building confidence and public support for the institution. Improved research on educational outcomes may well provide increased financial support for community colleges.

Recommendations for Follow-Up Study Improvement

Based on the preceding finding, the authors have developed a list of twelve recommendations for improving community college follow-up studies of former occupational-technical students:

1. Seek advice from outside consultants who are proficient in follow-up techniques. Only 14 percent of 391 responding colleges had sought the advice of research consultants.

2. Utilize published texts on planning, conducting, and reporting studies. Only 17 percent of 391 responding colleges had used follow-up guides.

3. Include non-graduates in research populations or samples. Less than one-fourth of the 85 reviewed reports included findings about non-graduates. Since many students in occupational-technical programs at community colleges do not graduate, the post-college activities and perceptions of these former students should be sought.

4. Employ representative sampling techniques. Only two of the 85 follow-up reports indicated that random or systemized sampling procedures had been used. These sampling procedures can substantially reduce research costs at large institutions.

5. Set an acceptable student response rate and implement means to achieve it. Thirty-three of the 85 colleges in the review group reported response rates of 70 percent or more, demonstrating that these rates can be achieved. Determining methods of reaching a desirable response rate is an important part of research planning.

6. Limit student questionnaires to information not obtainable from college records. Nearly 70 percent of 51 questionnaires requested such information as college major or year of graduation. Many asked for financial aid and other information which is easily obtained from college records. Such questions unnecessarily lengthen questionnaires and might have adverse effects on response rates.

7. Test for non-response bias. Approximately half of the studies reported response rates of less than 50 percent. Yet only one report indicated the use of a test of non-response bias.

8. Distinguish between experienced workers and career-entry workers. More than half of the 85 follow-up reports contained information on the salaries and career advancement of former students, but only six made any distinction between veteran and novice employees. The effects of occupational-technical training on employment opportunities cannot be adequately judged without such refinements in data.

9. Conduct longitudinal studies to measure career advancement and to obtain experience-based information. Three-fourths of the research studies pertained only to recent students (6 to 18 months after college). Responses are also needed from former students who have been employed for three, five, and ten years after leaving the community college.

10. Obtain employer evaluations of former occupational-technical students. Only six studies reported collecting or using data from employers. The opinions and suggestions of employers are valuable in assessing educational programs intended to build job skills.

11. Provide interpretive material and descriptions of populations and procedures. Over half of the reviewed reports consisted primarily of raw data. Several reports did not specify whether the subjects were graduates or non-graduates. One of eight contained no response rate information or data from which response rates could be calculated. Two of three reports did not indicate the number of student contacts, and one of four did not specify authorship.

12. Relate follow-up study results and interpretations to educational goals. A survey of educational goals in community college catalogues and literature yielded 44 goals, all but a few of which were ignored in most of the reviewed reports. Only 21 studies measured career satisfaction, and 13 reported on the effectiveness of career information. Nine studies provided information on former students' human relations skills, five were concerned with socio-economic mobility, and only two reported on employment licensure and union or occupational association membership for former students. Community college researchers should relate their results especially to goals listed in their own catalogues and master plans.

Suggestions for Additional Research

This study was limited to occupational-technical education at community colleges. Substantial numbers of occupational-technical students receive their training at technical institutes and private two-year colleges. Follow-up studies conducted at these institutions should be reviewed for the purpose of discovering model practices.

This research has revealed large differences in student response rates from one follow-up study to another. A study should be conducted to examine factors which influence student cooperation in follow-up research.

Finally, there appears to be great need for a comprehensive guide to planning, conducting and reporting follow-up studies of former occupational-technical students.

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APPENDICES

APPENDIX A

TWO-YEAR COLLEGE CATALOGUES FROM WHICH
EDUCATIONAL GOALS WERE DERIVED

College	State
Anchorage Community College	Alaska
Anne Arundel Community College	Maryland
Belleview Community College	Washington (St)
Brevard Community College	Florida
Cape Cod Community College	Massachusetts
Cerritos College	California
Clayton Junior College	Georgia
Columbia Basin College	Washington (St)
Cooke County Junior College	Texas
Daytona Beach Community College	Florida
East Central Junior College	Mississippi
Essex County College	New Jersey
Frederick Community College	Maryland
Grossmont College	California
Gulf Coast Junior College	Mississippi
Highland Park College	Michigan
Iowa Central Community College	Iowa
Johnson County Community College	Kansas
Kingsborough Community College	New York
Lakewood State Junior College	Minnesota
Los Angeles Harbour College	California
Macomb County Community College	Michigan
Massachusetts Bay Community College	Massachusetts
Metropolitan Junior College District	Missouri
Mount Hood Community College	Oregon
New Mexico Junior College	New Mexico
North Hennepin State Junior College	Minnesota
Norwalk Community College	Connecticut
Olympia College	Washington (St)
Palm Beach Junior College	Florida
Phillips County Community College	Arkansas
Rhode Island Junior College	Rhode Island
St. Johns River Junior College	Florida
San Jose City College	California
Sinclair Community College	Ohio
South Georgia College	Georgia
Tarrant County Junior College	Texas
Trinidad State Junior College	Colorado
University of Kentucky Community College System	Kentucky
Ventura College	California
Wayne Community College	North Carolina
Westchester Community College	New York

APPENDIX B

COVERING LETTER AND QUESTIONNAIRE
SENT TO COMMUNITY COLLEGES

VIRGINIA DEPARTMENT OF COMMUNITY COLLEGES

February 7, 1973

Dear President:

We are conducting a nation-wide survey of follow-up studies of former career or occupational-technical students which have been conducted since January, 1967, and which describe or analyze educational outcomes or post-college activities of students. The Virginia Department of Community Colleges is conducting this study in consultation with a team of experts in post-secondary career and occupational-technical education, and with the encouragement of the AACJC.

The purpose of our survey is to overcome the isolation of follow-up studies of former career or occupational-technical students, by publishing a national review of the frequency, emphases, procedures and findings of such studies. Relatively few locally-produced follow-up studies are disseminated through the ERIC Clearinghouse for Junior College Information.

We make two requests:

1. That you complete the brief questionnaire which follows.

2. That you mail single copies of follow-up studies conducted at your institution which meet the description above.

A postage-paid envelope is enclosed for your convenience in returning the questionnaire. If you have any questions about this request, please telephone Mr. William G. Williams, Research Associate for this project at 703-770-4272.

We greatly appreciate your help.

Very truly yours,

Fred A. Snyder
Director
Research and Planning

FAS:egw
Enclosure

911 EAST BROAD STREET, P. O. BOX 1558, RICHMOND, VIRGINIA 23212, AREA CODE 703/770-2231

RESEARCH SURVEY QUESTIONNAIRE

Regardless of whether you are sending copies of follow-up reports, we would like you to complete and return the following questionnaire.

INSTRUCTIONS: Place the appropriate number in the blank provided to the left of each item, except where noted.

____1. Type of control of your institution.

1 Public
2 Independent church-related
3 Independent nondenominational
4 Proprietary

____2. Type of student body.

1 Coeducational
2 Predominantly men (90% or more)
3 Predominantly women (90% or more)

3. Show the approximate fall, 1972, headcount enrollment at your college.

_____a. In career or occupational-technical programs
_____b. In transfer programs

(Career or occupational-technical programs include those which lead to an associate degree, certificate, or diploma for occupational preparation in trade, technical, or paraprofessional employment. Do not include students who are in foundations or developmental programs, or those who are not in any specific programs.)

4. Please indicate the areas in which your college offers occupational-technical programs. Mark (X) each which applies.

____a. Agricultural
____b. Business and Secretarial
____c. Engineering and Related Technologies
____d. Health Careers
____e. Public Service
____f. Other, please list_____

____5. Please indicate the status of your follow-up studies of former career or occupational-technical students.

1 One copy of each appropriate study is being sent
2 Have reports, but do not wish to circulate them
3 Have only informal studies for which there are no written reports
4 Have not conducted follow-up studies of career or occupational-technical students.

_____6. If you are sending one or more reports, do you wish your institution to remain anonymous?

1 Yes
2 No

7. How important were each of the considerations listed below in motivating your follow-up research? If you have conducted several follow-up studies for different reasons, try to indicate your most common or typical priorities. Mark each as (1) very important, (2) some importance, or (3) little or no importance.

_____a. Accountability to the public
_____b. Personnel evaluations
_____c. Requests from legislature, trustees, accrediting agencies, etc.
_____d. Curriculum evaluation
_____e. Student services evaluation
_____f. Other, please list_____

8. How important were each of the following in shaping the design of your follow-up research? If you have conducted several follow-up studies and they have had design input from different sources, try to indicate the most common or most typical source of design ideas. Mark each as (1) very important, (2) some importance, or (3) little or no importance.

_____a. Faculty members
_____b. Administrators
_____c. College's research staff
_____d. Outside consultant
_____e. Other follow-up studies
_____f. Published guides such as O'Connors*
_____g. Other, please list_____

_____9. Are you satisfied with the availability of follow-up reports prepared at other colleges for the purpose of comparing your procedures and findings?

1 Yes, satisfied
2 No, not satisfied
3 Not applicable, have not attempted to consult other reports

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*Thomas J. O'Connor. Follow-Up Studies in Junior Colleges: A Tool for Institutional Improvement. Washington: American Association of Junior Colleges, 1965.

_____10. Does your institution regularly conduct exit interviews of withdrawing students in order to determine why they are discontinuing attendance at your institution?

1 Yes
2 No

_____11. Has your institution conducted one or more surveys of the non-student population in your service area since January, 1967, in order to obtain such information as why persons do not attend the college, or to make demographic comparisons between students and non-students?

1 Yes
2 No

12. If your former students have been included in state-wide or regional follow-up studies since January, 1967, please furnish the following information:

Name of the
Investigating agency_____

Address_____

Title of the report_____

Report author_____

MANY THANKS FOR YOUR VALUABLE HELP!

_____
Name of person completing this form Title Phone

APPENDIX C

REMINDER LETTER TO COMMUNITY COLLEGES

VIRGINIA DEPARTMENT OF COMMUNITY COLLEGES

March 5, 1973

Dear President:

Several weeks ago we mailed you a request for information related to a nation-wide survey of studies of career or occupational-technical students at two-year colleges. Specifically, we requested copies of follow-up studies completed at your college and the completion of a short questionnaire.

If you have answered our request, please ignore this reminder.

Since we have not received your reply to date, we are sending a duplication of the earlier correspondence. Our review of follow-up study procedures and findings should result in the advancement of follow-up research design and outcomes evaluation at two-year colleges. However, a high rate of response to our request is necessary if the survey is to be successful.

Thanks for your help.

Very truly yours,

Fred A. Snyder
Director
Research and Planning

FAS:egw

Enclosure

911 EAST BROAD STREET, P. O. BOX 1558, RICHMOND, VIRGINIA 23212, AREA CODE 703/770-2231

APPENDIX D

CONTENT CODING FORM FOR
FOLLOW-UP STUDY REPORTS

NATIONAL FOLLOW-UP STUDY - REPORT CODING SHEET PART 1 - GENERAL CHARACTERISTICS

Institution name _____ Code _____

Address _____ Class _____

___ 1. (1) all grads (2) sample grads (3) all non (4) sample non (5) all stu (6) sample stu

___ 2. (1) agriculture (2) business and sec (3) engineering and tech. (4) health (5) pub. svs. (6) other _____

___ 3. Sample method: (1) random (2) system (3) arbitrary

___ 4. contacts: 1 2 3 4 5 or more ___ 4.b telephone (1) yes (2) no

___ 5. response rate, grads: (1) less than 40% (2) 40/49 (3) 50/59 (4) 60/69 (5) 70/79 (6) 80/89 (7) 90/100

___ 6. response rate, non: (1) less than 40% (2) 40/49 (3) 50/59 (4) 60/69 (5) 70/79 (6) 80/89 (7) 90/100

___ 7. number of report pages

8. number of questions ____

___12. context: (1) independent (2) related study (3) non-related study

___13. (1) data predominantly (2) data and narrative (3) narrative predominantly

___14. check non-response bias: (1) yes (2) none indicated

___15. test of significance: (1) yes (2) none indicated

___16. reports from employers: (1) yes (2) none indicated

___17. control for: (1) entry (2) update (3) retrain (4) none indicated

___18. longitudinal study: (1) yes (2) part of one (3) no or no indication

PART 2 - GOAL ITEMS

General

19. Opportunity for education
20. Time and place
21. Cost and F.A.
22. Manpower needs
23. Economic Development

Individual Differences

24. Individual interests
25. Retrain
26. Upgrade
27. Career entry
28. Minorities
29. Handicapped
30. Ed. disadvantage
31. Enrollment barriers

Self Understanding

32. Abilities
33. Aptitude
34. Interests
35. Program placement/completion
36. Dropout reasons
37. Future needs
38. Career information
39. Working conditions
40. Change

Skills and Attitude for Work

41. Skills leading to employment
42. Advancement
43. Work habits
44. Work attitude
45. Human relations
46. License
47. Society or union
48. Job seeking skills
49. Job safety
50. General education

Rewarding Life

51. School satisfaction
52. Socio-economic mobility
53. Adequate income
54. Occupational satisfaction
55. Leisure time
56. Social skills
57. Personal problems
58. Consumer education

Citizenship

59. Leadership
60. Democratic principles
61. Law violations
62. Civic pride

PART 3 - QUESTIONNAIRE ITEMS

63. Registrar's data
64. Enrollment period information
65. Student transfer
66. Student advice and evaluation

APPENDIX E

CONTENT CODING PROCEDURES FOR FOLLOW-UP STUDY REPORTS

The contents of the 85 community college follow-up reports were coded in items 1 through 66 of the three-part coding form in Appendix D.

Information coded in Part I (items 1 through 18) pertains to follow-up research procedures and report format. The coding system is described below:

Item 1. Shows whether the research subjects were graduates only (options 1 or 2), non-graduates only (options 3 or 4), or former students regardless of program completion (options 5 or 6). The first option in each of the three pairs (1, 3 or 5) was used to designate that an entire population rather than a sample or sub-population was used.

Item 2. In cases where follow-up studies included subjects who were limited to one or two curricular areas, options one through six were used to identify the area.

Item 3. When the information in Item 1 revealed the use of sampling, the method of sampling was indicated by means of options 1, 2 or 3.

Item 4a. This item shows the number of attempts which were made to contact former students by means of mailed contacts.

4b. Any attempts to contact students by telephone were coded as 1.

Items 5 & 6 These items were found to be unsatisfactory and were not used. An alternative device of writing the exact aggregate percentage combined the response rates for all subjects regardless of program completion, curriculum, etc.

Item 7. The number of report pages was coded and included all attachments or appendices.

Item 8. The number of questions contained in each student questionnaire was coded in those cases where the follow-up report contained a sample questionnaire. The validity of this code is not precise due to college-to-college inconsistencies in numbering techniques.

Items 9, 10 & 11 These coding categories were deleted.

Item 12. Independent reports (option 1) are those which pertain to occupational-technical students exclusively. Option 2 was used to indicate that occupational-technical follow-up information was contained as part of some report larger in scope. Most typically "related studies" contain follow-up data on both O-T and transfer students. Option 3 was used

to indicate the occurrence of occupational-technical data in a non-related document such as a college newspaper or annual report.

Item 13. This item describes the balance between data and narrative.

Items 14, 15 & 16 These items have only two options each and merely show the presence or absence of the three procedures in the reports. Any test of non-response bias, a test of the population significance of samples-based data or any attempt to contact employers of former students are indicated by options 1 in each item. No attempt was made to judge whether the three procedures were used properly.

Item 17. Options show whether the researchers distinguished between career entry students and those who had prior experience. Advancement and salary data, for example, are seriously biased when veteran workers are included with beginners.

Item 18. A longitudinal study is one which contacts the same subject more than once over a period of time. Reports which included longitudinal comparisons were coded 1. Option 2 was used to identify a report which was a duplicate contact of a group of former students, but which did not report comparisons. Option 3 identifies those reports which are based solely on one follow-up contact of subjects.

Items 19 through 62 on coding form A constitute Part 2 of the coding form and are related to the educational goals inventory presented in Section III. Each of the numbered items represents consecutively the goals in the inventory. Brief, telegraphic key words were used to identify each goal for the coder.

Each of the 85 follow-up reports was coded twice together with the accompanying student questionnaire, if present. Determinations were made as to whether the data which were presented and/or collected could be related to the measurement of the attainment of each of the educational goals. No attempt was made to determine whether the college researchers had accurately measured the attainment of an educational goal, but rather whether they had demonstrated interest in the goal by collecting or reporting relevant data.

The sample evaluation measures in Section III consist of examples of the kinds of data gathered or requested which would result in a positive coding response.

For example, coding sheet item 52 is "socio-economic mobility". The evaluation measures for the corresponding goal (No. 34) are "Former student educational level, career field prestige and other SES factors compared with those of parents".

If a college follow-up report collected such data and/or reported them, the report was given credit for measurement interest in goal 34.

On the coding sheet this was accomplished by placing a circle around number 52.

The coding of measurement interest in an educational goal was not limited to the appearance of evaluation measures which are found in the goals inventory. For example, a college might have asked its former students whether it was the student's opinion that he was better educated than his parents or whether he thought his career would result in greater success than that enjoyed by his parents.

Part 3 of the follow-up report coding form contains four items numbered 63-66 which were used to identify miscellaneous characteristics of the 51 student questionnaires which were coded. College requests for registrar's data, enrollment period information, student transfer information, or advice and evaluations from former students was indicated by circling the appropriate item number.

APPENDIX F

COMMUNITY COLLEGES WHOSE FOLLOW-UP REPORTS WERE CONTENT CODED

College	State
Cochise County Community College	Arizona
Westark Junior College	Arkansas
Canada College	California
Coast Community College District	California
Los Angeles City College	California
Los Angeles Harbour College	California
Los Angeles Pierce College	California
Santa Barbara City College	California
Santa Rosa Junior College	California
Community College of Denver, Auraria Campus	Colorado
Mattatuck Community College	Connecticut
Broward Community College	Florida
Daytona Beach Community College	Florida
Miami-Dade Junior College	Florida
Santa Fe Community College	Florida
Dekalb College	Georgia
Kauai Community College	Hawaii
Kishwaukee College	Illinois
Moraine Valley Community College	Illinois
Sauk Valley College	Illinois
Spoon River College	Illinois
Des Moines Area Community College, Central Campus	Iowa
Iowa Central Community College	Iowa
Southeastern Community College	Iowa
Charles County Community Co-lege	Maryland
Harford Community College	Maryland
Montgomery College	Maryland
Delta College	Michigan
Macomb County Community College, South Campus	Michigan
Southeastern Michigan College	Michigan
Mississippi Delta Junior College	Mississippi
Florrisant Valley Community College	Missouri
State Fair Community College	Missouri
Northeast Technical Community College	Nebraska
Mercer County Community College	New Jersey

College	State
Broom Community College	New York
Columbia Green Community College	New York
Dutches Community College	New York
New York City Community College	New York
Niagara County Community College	New York
S.U.N.Y. Agricultural and Technical College Morrisville Campus	New York
North Dakota State School of Science	North Dakota
Lakeland Community College	Ohio
Mt. Hood Community College	Oregon
Community College of Philadelphia	Pennsylvania
Harrisburg Area Community College	Pennsylvania
Lehigh County Community College	Pennsylvania
Ammarillo College	Texas
Bee County College	Texas
Tarrant County Community College	Texas
Tidewater Community College	Virginia
Germanna Community College	Virginia
Blue Ridge Community College	Virginia
Lord Fairfax Community College	Virginia
Shoreline Community College	Washington
Everett Community College	Washington
Madison Area Technical College	Wisconsin
Milwaukee Area Technical College	Wisconsin

(Twenty-seven institutions requested anonymity.)

APPENDIX G

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LOS ANGELES

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